

Building Pollinators

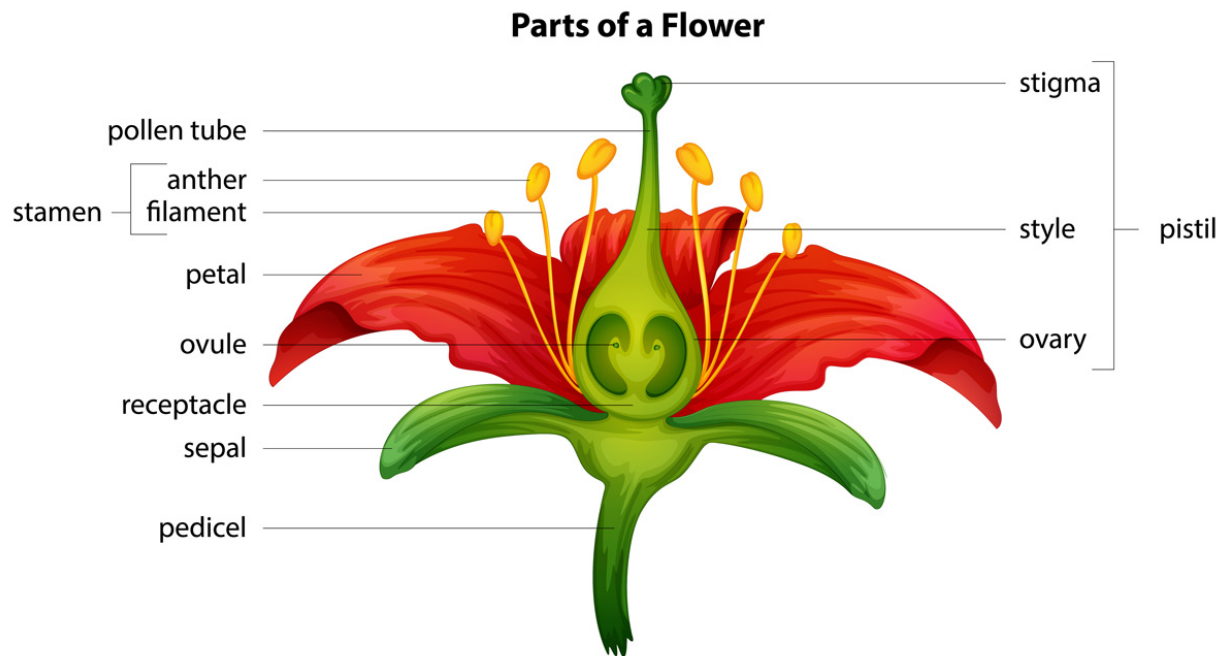
Learning Objective: Learn about pollinators.

Prep Time: 5-10 minutes

Duration: 20-40 minutes

Learning content:

The goal of every living organism, including plants, is to create offspring for the next generation. Pollination is the act of transferring pollen grains from the male anther of a flower to the female stigma. One of the ways that plants can produce offspring is by making seeds. Seeds contain the genetic information to produce a new plant. Flowers are the tools that plants use to make their seeds. The basic parts of the flower are shown in the diagram below. Seeds can only be produced when pollen is transferred between flowers of the same species. A species is a group capable of producing



offspring with each other, but not another group.

Pollen from the stamen of Flower 1 is deposited on the stigma of Flower 2. Once on the stigma, pollen may “germinate,” which means that a “pollen tube” forms on the sticky surface of the stigma and grows down into the ovule of the plant.

While some flowers can self-pollinate, many rely on outside sources to move their pollen, such as wind, water, birds, bees, butterflies, humans, bats, and other animals. We call animals or insects that transfer pollen from plant to plant “pollinators”. The pollinator is often eating or collecting pollen for its protein and other nutritional characteristics, or it is sipping nectar from the flower when pollen grains attach themselves to the animal’s body. When the animal visits another flower for the same reason, pollen can fall off onto the flower’s stigma and may result in successful

reproduction of the flower, therefore they're usually unaware that they're pollinating. (U.S. Department of Agriculture 2023)

Supplies:

- Images of various pollinators
- Pipe Cleaners – varying colors and amounts for each student
- Construction Paper in a variety of colors
- Markers
- Beads
- Pompoms
- Flowers or paper flowers
- Glue
- Scissors
- Native endemic plant card games

Set Up:

- Organize craft supplies for students to share
- Build example pollinators using craft supplies
- Create paper flower, or have real flowers prepared for students to investigate

Activity:

1. **Introduce** the concept of pollinators. What kind of plants have you seen growing nearby? What makes those plants grow?
2. **Show** students example pollinators made from craft supplies. Use examples to demonstrate how those creatures pollinate.
3. Invite students to **make** their own pollinators with craft supplies
4. Invite students to use their pollinators to **mimic pollination** with the prepared paper flowers or real flowers.
5. **Reflect.** How do you think your animal pollinates? How can we help plants grow and protect pollinators?

Extension:

- You can purchase real pollen online for student to explore using their hands, magnifying glasses, and microscopes.
- Learn about traditional Indigenous uses of plants online and Native endemic plant card games (included in the spectrUM curriculum kits).

spectrUM Pedagogy:

Inspire Curiosity: Ask open-ended questions and encourage creative thinking.

Encourage Growth Mindset: Building can be challenging and a point of frustration for some students. Be available to help students when invited, do not build their pollinators for them. Encourage students and praise them on their effort and problem-solving skills.

Make Meaning: Create personal connections between science and students by asking them about their relationship with plants.

Navigate Your Future: Let students know about resources and opportunities for them to continue to pursue an interest in botany and pollinators, such as classes, clubs, camps, and higher education.

Collaborate With Communities: spectrUM has collaborated with many tribal representatives to connect science with Indigenous traditions. These resources can be found on spectrUM's website, umt.edu/spectrUM.

Try It: Encourage student autonomy by providing them the opportunity to build their pollinators and problem-solve independently.